SAS to SAS/SATA II JBOD Subsystem

User Manual

Revision 1.0

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Chapter 1 Introduction

The 16 bays EPICa JBOD Subsystem

The EPICa EP-3164JD-S6S6 is a 19-inch 3U 16 bays rackmount JBOD unit. It features the latest SAS II (6Gb/s) interface and comes with dual JBOD controllers to support dual-active configuration. It designed to fit in with the environments which needed highly reliable and relentless data growth. The EP-3164JD-S6S6 is also a versatile SAS / SATA Disk Expansion system, ideal for high capacity and scalability storage in IT demands. Based on the 6G SAS technology, the EP-3164JD-S6S6 supports the choice of SAS and SATA drive configurations to deliver the best cost-performance index with higher bandwidth.

1.1 Features

- 16 hot-swappable drive bays in a rackmount 3U chassis
- Simultaneously support SAS or SATA disks
- Each SAS JBOD controller module consist of two 6G mini SAS (4x) port
- Power Supply and cooling system contained in 1 module for efficient cooling
- Two 500W redundant hot swappable power supplies
- Incorporates a cableless design for maximum signal integrity
- Utilizes industry-standard SCSI Enclosure Services to monitor enclosure and disk environmental conditions

Enclosure monitoring

- S.E.S. support for standard enclosure management
- System LED indications
- Fan speed monitoring
- Power supply monitoring
- System voltage monitoring
- System temperature monitoring
- System alarm

1.2 Technical Specifications

Model	EP-3164JD-S6S6
RAID Controller	JBOD
Controller	Dual
Host Interface	Two 4x mini SAS (6Gb/s)
Disk Interface	SAS 3Gb/6Gb or SATA II/III *
SAS expansion	Two 4x mini SAS (6Gb/s)
S.M.A.R.T. support	Yes
Platform	Rackmount
Form Factor	3U
# of Hot Swap Trays	16
Tray Lock	Yes
Disk Status Indicator	Access / Fail LED
Backplane	SAS / SATA Single BP
# of PS/Fan Modules	500W x 2 w/PFC
# of Fans	4
Power requirements	AC 90V ~ 264V Full Range, 10A ~ 5A, 47Hz ~ 63Hz
Relative Humidity	10% ~ 85% Non-condensing
Operating Temperature	10°C ~ 40°C (50°F ~ 104°F)
Physical Dimension	566(L) x 482(W) x 131(H) mm
Weight (Without Disk)	22.5 Kg

* Request optional dongle board for SATA II/III hard drive

1.3 Terminologies

The document uses the following terms:

- **Part 1: Common**

RAID	**R**edundant **A**rray of **I**ndependent **D**isks. There are different RAID levels with different degree of data protection, data availability, and performance to host environment.
JBOD	The abbreviation of **"J**ust a **B**unch **O**f **D**isks**"**. JBOD needs at least one hard drive.
SCSI	**S**mall **C**omputer **S**ystems **I**nterface.
SAS	**S**erial **A**ttached **S**CSI.
S.M.A.R.T.	**S**elf-**M**onitoring **A**nalysis and **R**eporting **T**echnology.
WWN	**W**orld **W**ide **N**ame.
HBA	**H**ost **B**us **A**dapter.

- **Part 2: Dual controller**

SBB	**S**torage **B**ridge **B**ay. The objective of the Storage Bridge Bay Working Group (SBB) is to create a specification that defines mechanical, electrical and low-level enclosure management requirements for an enclosure controller slot that will support a variety of storage controllers from a variety of independent hardware vendors ("IHVs") and system vendors.
Dongle Board	SATA Dongle board is for SATA II disk connection to the dual controller backplane.
Bridge Board	SAS-SATA Bridge board is for SATA II disk connection to the dual JBOD backplane.

Chapter 2 Getting Started

2.1 Unpacking the JBOD Subsystem

The shipping package contains the following:

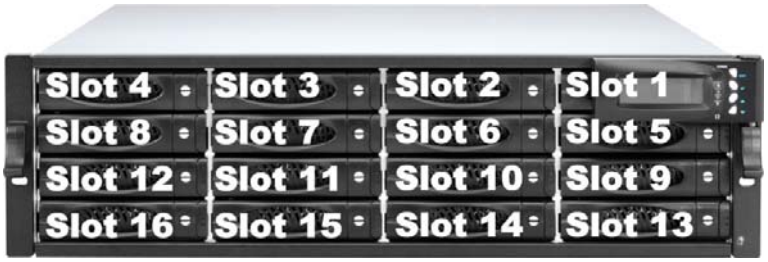
	JBOD Subsystem Unit
	Two (2) power cords
	Two (2) external Mini SAS cables SFF-8088 to SFF-8088
	One (1) JBOD Controller Module Plate Cover
	One (1) PSFM Plate Cover
	User Manual

NOTE: If any damage is found, contact the dealer or vendor for assistance.

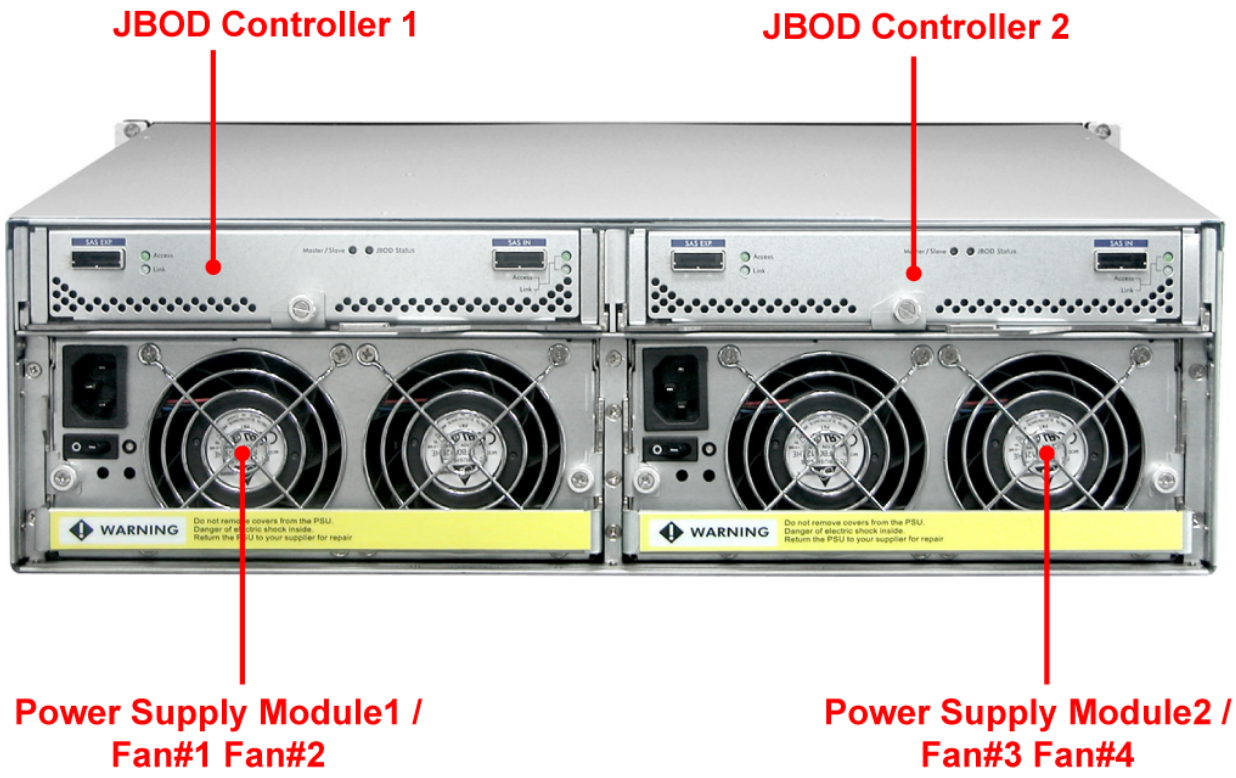
2.2 Identifying Parts of the JBOD Subsystem

The illustrations below identify the various parts of the expansion chassis.

2.2.1 Front View



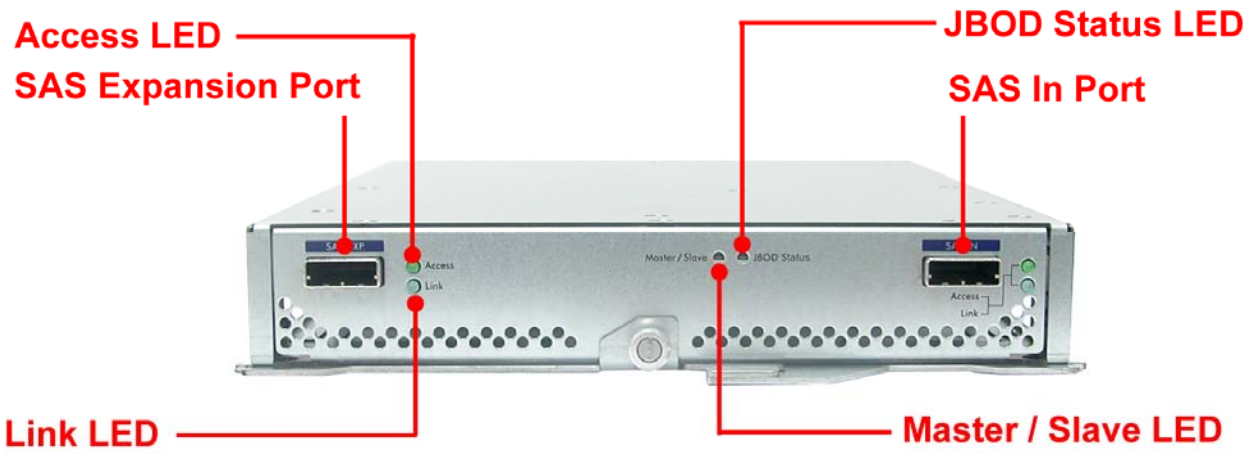
2.2.2 Rear View



2.2.3 JBOD Controller Module

JBOD Controller Module

2.2.3.1 JBOD Controller Panel



Part	Description
SAS In Port	Use to connect to RAID subsystem's SAS Expansion Port.
SAS Expansion Port	Use to connect to the SAS In Port of another JBOD subsystem.

Indicator	Color	Description
Master/Slave LED	Green	Indicates the master controller; Off indicates the slave controller.
JBOD Status LED	Green	Indicates controller status normal or in the booting state.
Link LED	Blue	Indicates expander has connected or linked.
Access LED	Blinking Green	Indicates the expander is busy and being accessed.

2.3 Power Supply Fan Module (PSFM)

The RAID subsystem contains **two 500W Power Supply / Fan Modules**. All the Power Supply / Fan Modules (PSFMs) are inserted into the rear of the chassis.

2.3.1 PSFM Panel

AC Power Input Socket
Power On/Off Switch
Power On/Fail Indicator
WARNING
Do not remove covers from the PSU.
Danger of electric shock inside.
Return the PSU to your supplier for repair

The panel of the Power Supply/Fan Module contains: the Power On/Off Switch, the AC Inlet Plug, and a Power On/Fail Indicator showing the Power Status LED, indicating ready or fail.

Each fan within a PSFM is powered independently of the power supply within the same PSFM. So if the power supply of a PSFM fails, the fan associated with that PSFM will continue to operate and cool the enclosure.

When the power cord connected from main power source is inserted to the AC Power Inlet, the power status LED becomes RED. When the switch of the PSFM is turned on, the LED will turn GREEN. When the Power On/Fail LED is GREEN, the PSFM is functioning normally.

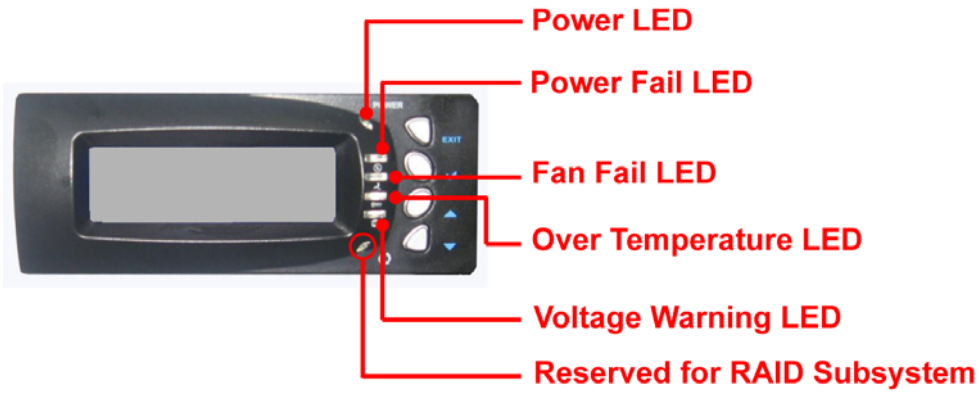
NOTE: Each PSFM has one Power Supply and two Fans. The PSFM 1 has Power#1, Fan#1 and Fan#2. The PSFM 2 has Power#2, Fan#3 and Fan#4. When the Power Supply of a PSFM fails, the PSFM need not be removed from the slot if replacement is not yet available. The fan will still work and provide necessary airflow inside the enclosure.

In replacing the failed PSFM, refer to section 5.2.2 of this manual.

NOTE: After replacing the Power Supply Fan Module and turning on the Power On/Off Switch of the PSFM, the Power Supply will not power on immediately. The Fans in the PSFM will spin-up until the RPM becomes stable. When Fan RPM is already stable, the JBOD controller will then power on the Power Supply. This process takes more or less 30 seconds. This safety measure helps prevent possible Power Supply overheating when the Fans cannot work.

2.4 LCD Display Panel

2.4.1 LCD Panel LED



Parts	Function
Power LED	Green indicates power is ON.
Power Fail LED	If one of the redundant power supply unit fails, this LED will turn to RED and alarm will sound.
Fan Fail LED	Turn RED when fan fails, or fan's rotational speed is lower than 1500 RPM.
Over Temperature LED	If disk temperatures exceed 65°C, the Over Temperature LED will turn RED and alarm will sound.
Voltage Warning LED	An alarm will sound if detected voltage in the controller is abnormal and LED will turn RED.

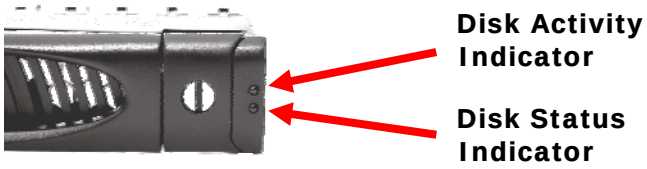
2.4.2 LCD Panel Function Buttons

Parts		Function
Up and Down Arrow buttons	▲ ▼	Use the Up or Down arrow keys to go through the information on the LCD screen. This is also used to move between each menu.
Select button	✔	This is used to enter the option you have selected.
Exit button	EXIT	Press this button to return to the previous menu.

2.5 Drive Carrier Module

The Drive Carrier Module houses a 3.5 inch hard disk drive. It is designed for maximum airflow and incorporates a carrier locking mechanism to prevent unauthorized access to the HDD.

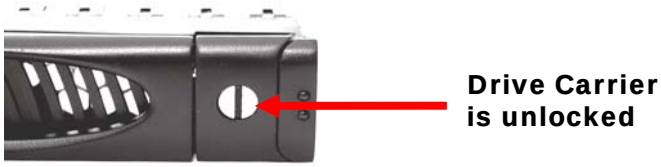
2.5.1 Disk Drive Status Indicators



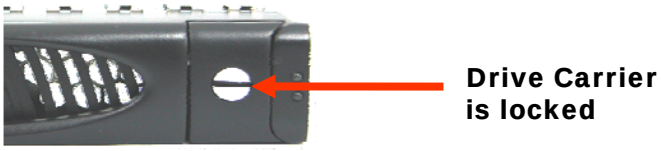
Part	Function
Disk Activity Indicator	This LED will blink blue when the hard drive is being accessed.
Disk Status Indicator	Green LED indicates power is on and hard drive status is good for this slot. If there is no hard drive, the LED is Red. The fault indicator depends on the RAID card or RAID Controller definition.

2.5.2 Drive Carrier Lock Indicator

Every Drive Carrier is lockable and is fitted with a lock indicator to indicate whether or not the carrier is locked into the chassis or not. Each carrier is also fitted with an ergonomic handle for easy carrier removal.



When the Lock Groove is vertical, then the Drive Carrier is unlocked.



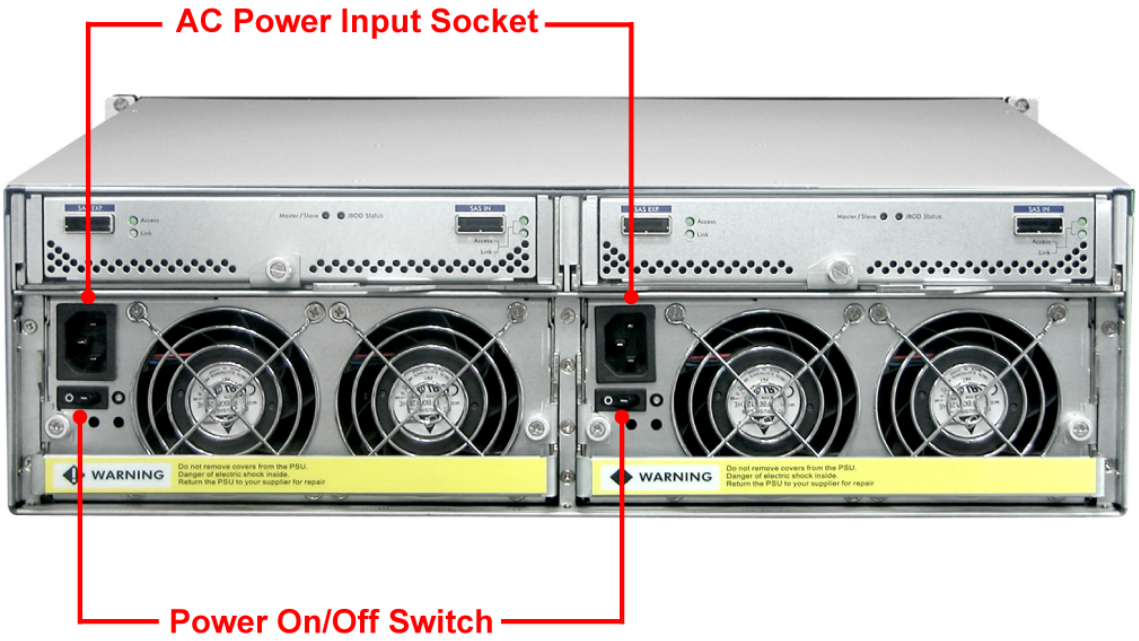
When the Lock Groove is horizontal, this indicates that the Drive Carrier is locked.

Lock and unlock the Drive Carriers by using a flat-head screw driver.

Chapter 3 Installation of JBOD Subsystem

3.1 Powering On

1. Plug in the power cords into the AC Power Input Socket located at the rear of the subsystem.



NOTE: The subsystem is equipped with redundant, full range power supplies with PFC (power factor correction). The system will automatically select voltage.

2. Turn on each Power On/Off Switch to power on the subsystem.
3. The Power LED on the front panel will turn green.

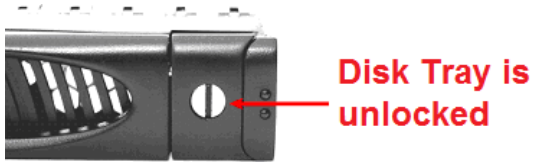
3.2 Disk Drive Installation

This section describes the physical locations of the hard drives supported by the subsystem and give instructions on installing a hard drive. The subsystem supports hot-swapping allowing you to install or replace a hard drive while the subsystem is running.

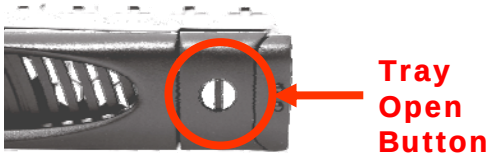
3.2.1 Installing a SAS Disk Drive in a Disk Tray

NOTE: These steps are the same when installing SATA disk drive in Single Controller Mode.

1. Unlock the Disk Trays using a flat-head screw driver by rotating the Lock Groove.

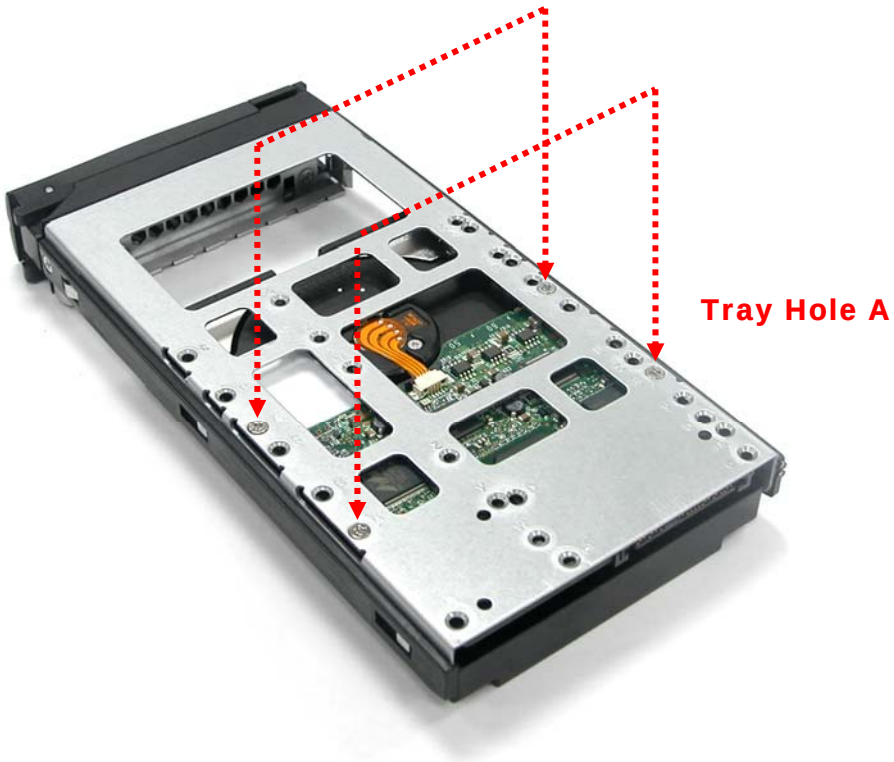


2. Press the Tray Open button and the Disk Tray handle will flip open.



3. Pull out an empty disk tray.

4. Place the hard drive in the disk tray. Turn the disk tray upside down. Align the four screw holes of the SAS disk drive in the four Hole A of the disk tray. To secure the disk drive into the disk tray, tighten four screws on these holes of the disk tray. Note in the picture below where the screws should be placed in the disk tray holes.



NOTE: All the disk tray holes are labelled accordingly.

5. Slide the tray into a slot.

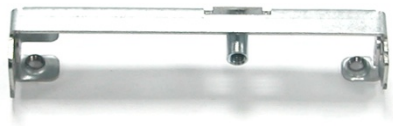
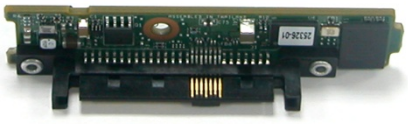
6. Press the lever in until you hear the latch click into place. The HDD Fault LED will turn green when the subsystem is powered on and HDD is good.

7. If necessary, lock the Disk Tray by turning the Lock Groove.

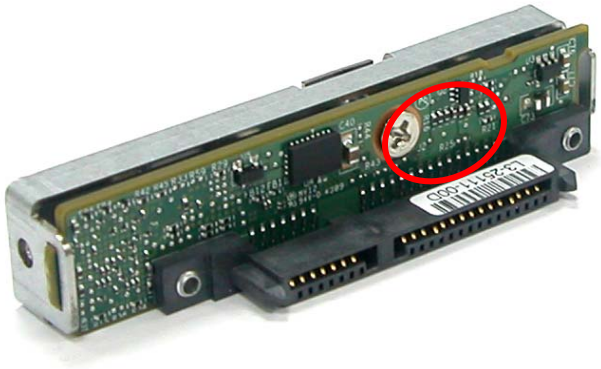
3.2.2 Installing a SATA Disk Drive (Dual JBOD Controller Mode) in a Disk Tray

1. Remove an empty disk tray from the subsystem.

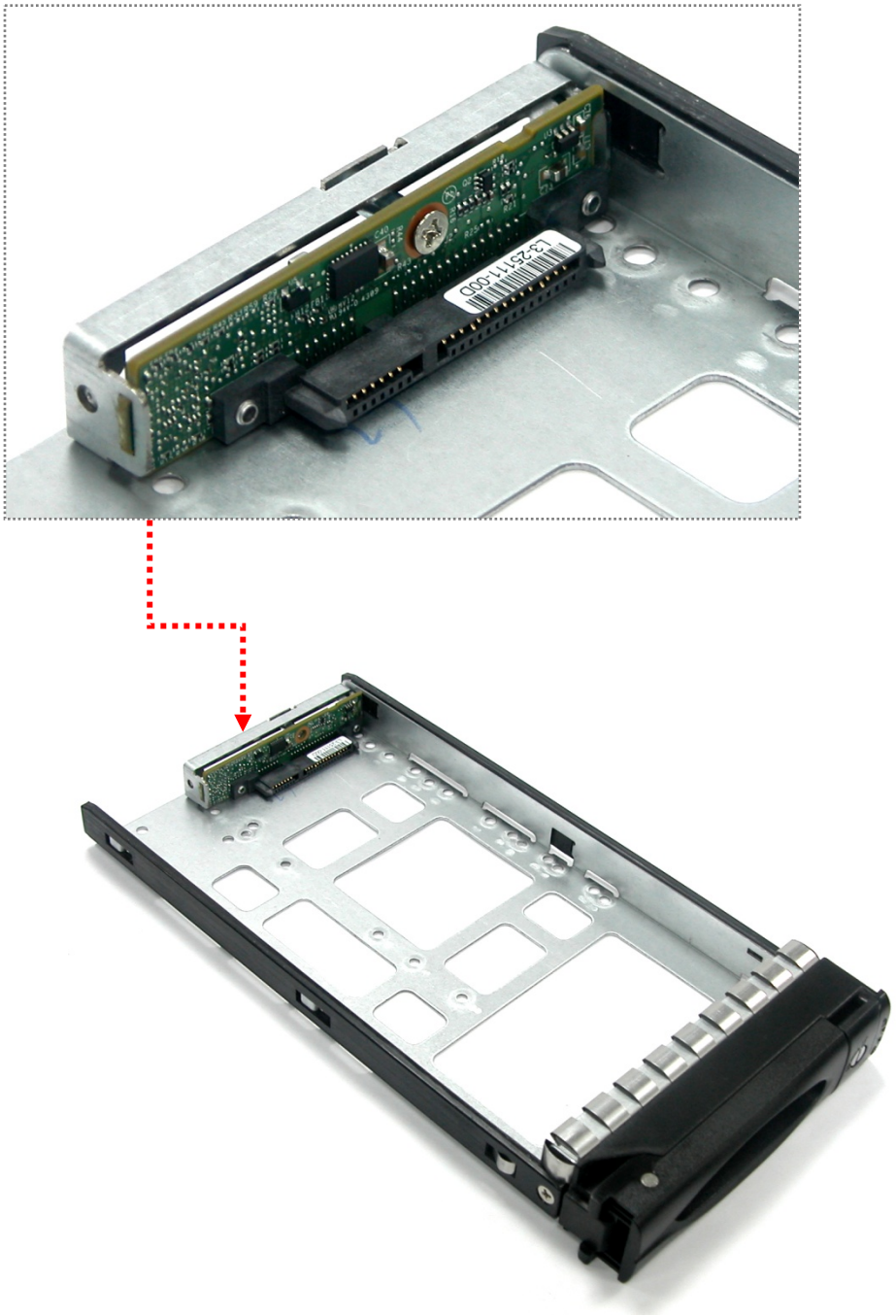
2. Prepare the dongle board the Fixed Bracket, and screws.

	**Fixed Bracket**
	**6G Dongle Board**
	Screws

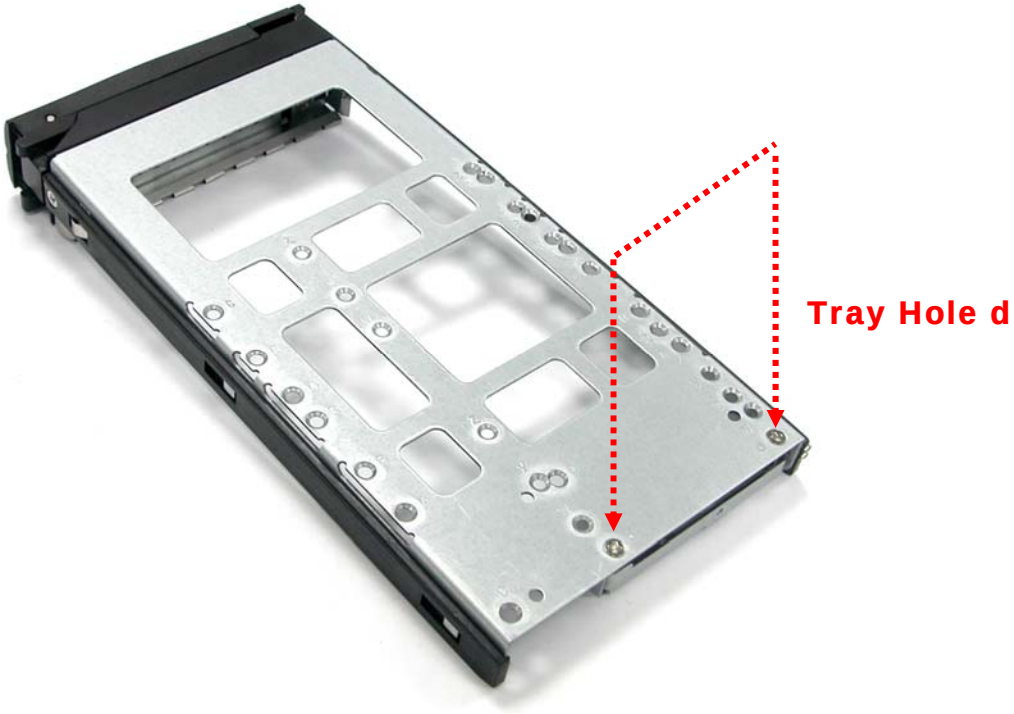
3. Attach the dongle board in the Fixed Bracket with a screw.



4. Place the Fixed Bracket with the dongle board in the disk tray as shown.



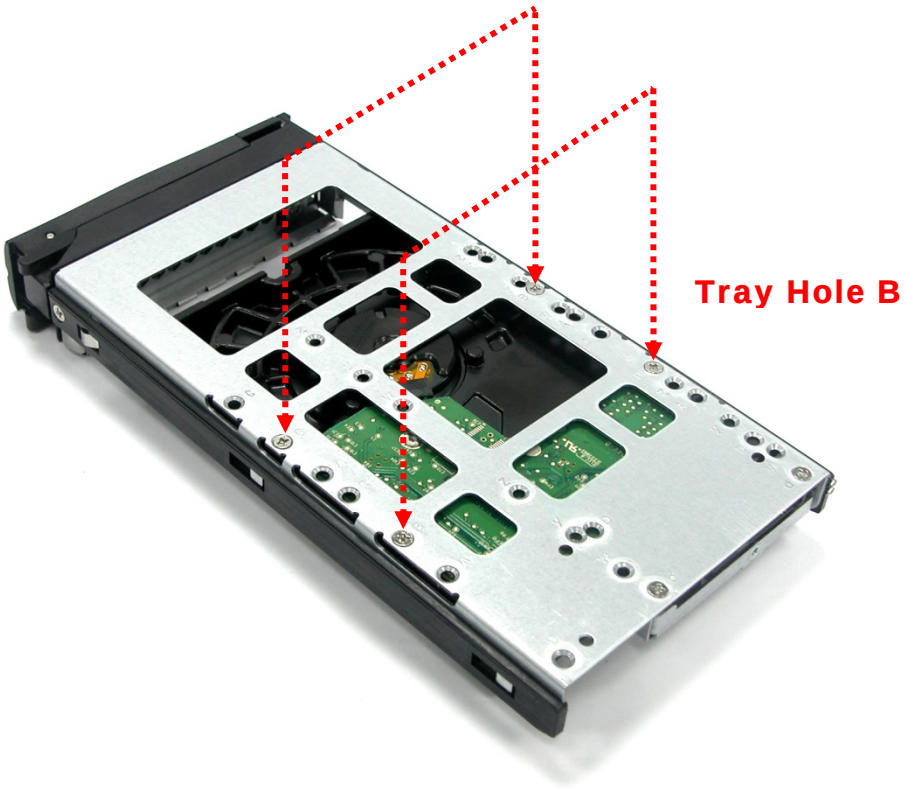
5. Turn the tray upside down. Align the holes of the Fixed Bracket in the two *Hole d* of the disk tray. Tighten two screws to secure the Fixed Bracket into the disk tray.



NOTE: All the disk tray holes are labelled accordingly.

6. Place the SATA disk drive into the disk tray. Slide the disk drive towards the dongle board.

7. Turn the disk tray upside down. Align the four screw holes of the SATA disk drive in the four *Hole B* of the disk tray. To secure the disk drive into the disk tray, tighten four screws on these holes of the disk tray. Note in the picture below where the screws should be placed in the disk tray holes.



NOTE: All the disk tray holes are labelled accordingly.

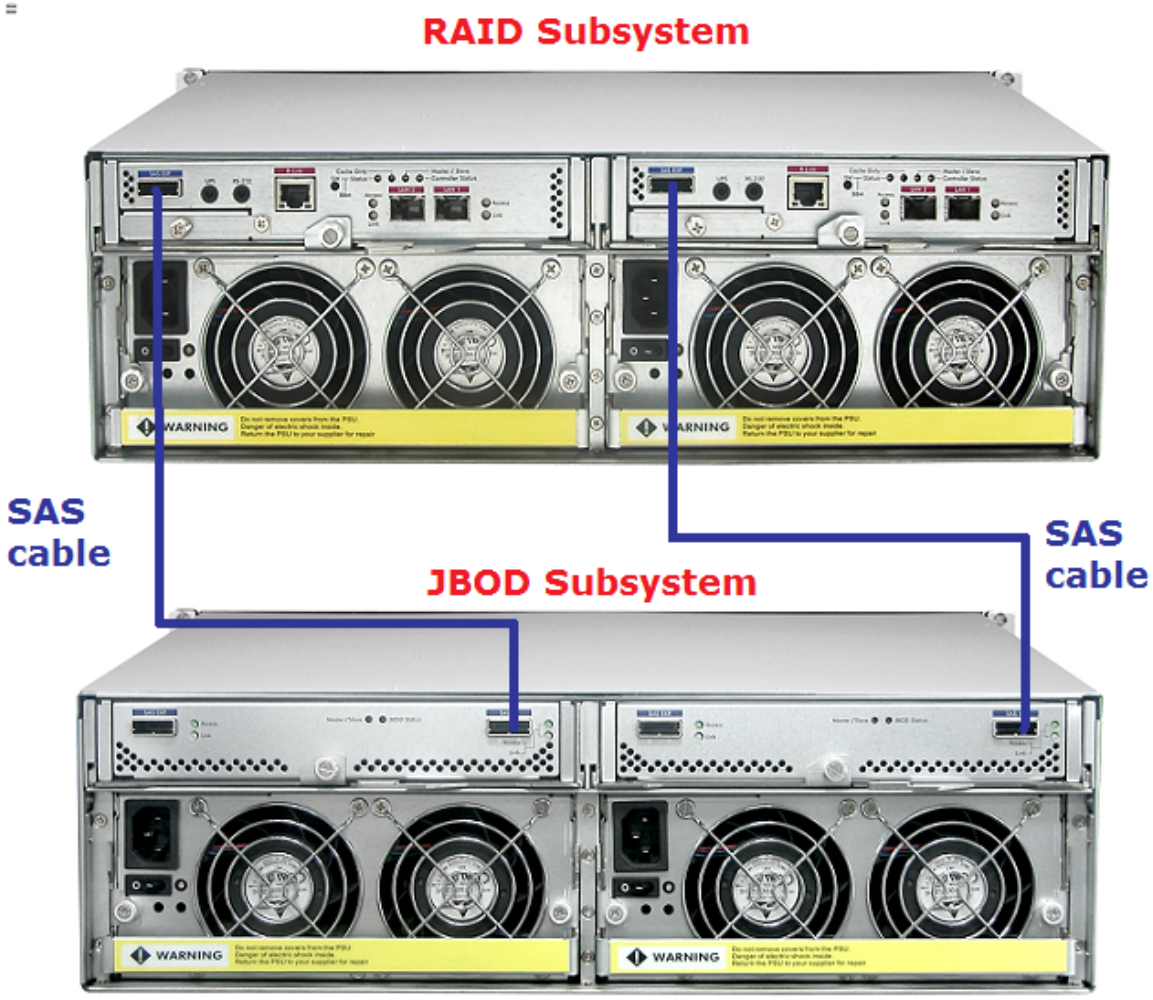
8. Insert the disk tray into the subsystem.

3.3 Connecting the JBOD Subsystem

3.3.1 Connecting to RAID Subsystem

Attach one end of the SAS cable to the SAS IN Port of the JBOD controller module and the other end to the SAS Expansion Port on the RAID controller of RAID subsystem. If configured in redundant mode, connect the other SAS cable to the SAS IN Port of the other JBOD controller, and the other end to the SAS Expansion Port on the other RAID controller of RAID subsystem.

=



An Example of JBOD Subsystem Connection

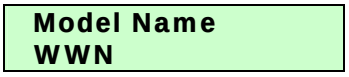
Chapter 4 Quick Setup

4.1 Management Interfaces

There is only one management method to manage the dual JBOD controller, described as follows:

4.1.1 LCD Control Module (LCM)

After booting up the system, the LCD display will show the JBOD subsystem model name and WWN (World Wide Name or SAS address):



Press **"ENT"**, the LCM functions **"Alarm From"**, **"Alarm Mute"**, **"Enclosure"**, and **"System Reset"** will rotate by pressing ▲ (up) and ▼ (down).

The following table is function description of each item.

- **LCM operation description:**

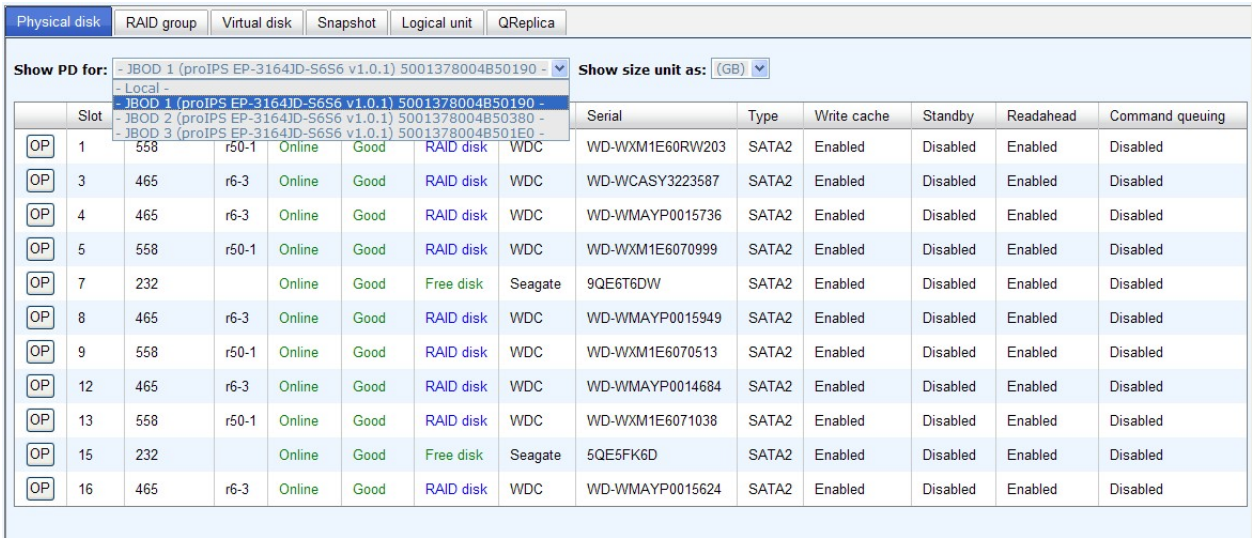
FW Version	Firmware version of controller.
Alarm From	Alarm from power supply, cooling fan, thermal sensor or voltage sensor.
Enclosure	Status of power supply, cooling fan, thermal sensor and voltage sensor.
System Reset	Reset controller.
Shutdown	Shutdown controller.

- **LCM menu hierarchy:**

Model Name / WWN	FW Version	x.x.x	
	[Alarm From]	[Alarm From] xxxxxx	
	[Enclosure]	[Power Supply] Good/Fail	[▼PSU1] [O/X] [▲PSU2] [O/X]
		[Cooling Fan] Good/Fail	[▼Fan 1] xxxx rpm [O/X] [▲Fan 2] xxxx rpm [O/X]
		[Thermal Sensor] Good/Fail	[▼Temperature 1] xx ℃ [O/X] [▼▲Temperature 2] xx ℃ [O/X] [▼▲Temperature 3] xx ℃ [O/X] [▲Temperature 4] xx ℃ [O/X] ...
		[Voltage Sensor] Good/Fail	[▼Voltage 1] x.xx V [O/X] [▼▲Voltage 2] x.xx V [O/X] [▼▲Voltage 3] x.xx V [O/X] [▼▲Voltage 4] x.xx V [O/X] [▼▲Voltage 5] x.xx V [O/X] [▼▲Voltage 6] x.xx V [O/X] [▲Voltage 7] x.xx V [O/X]
	[System Reset]	[▼Yes No▲]	
	[Shutdown]	[▼Yes No▲]	

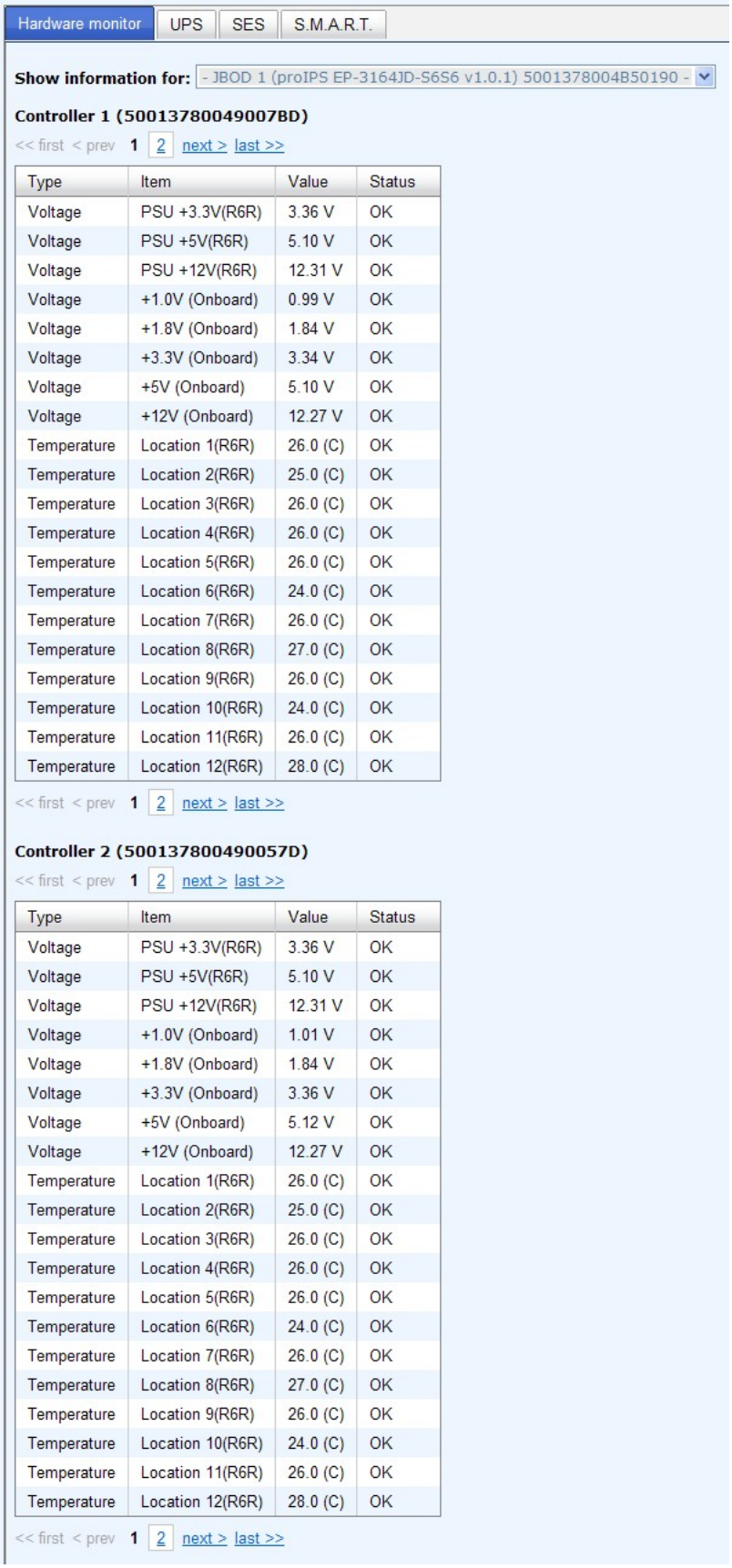
4.2 Connecting JBOD to RAID Controller

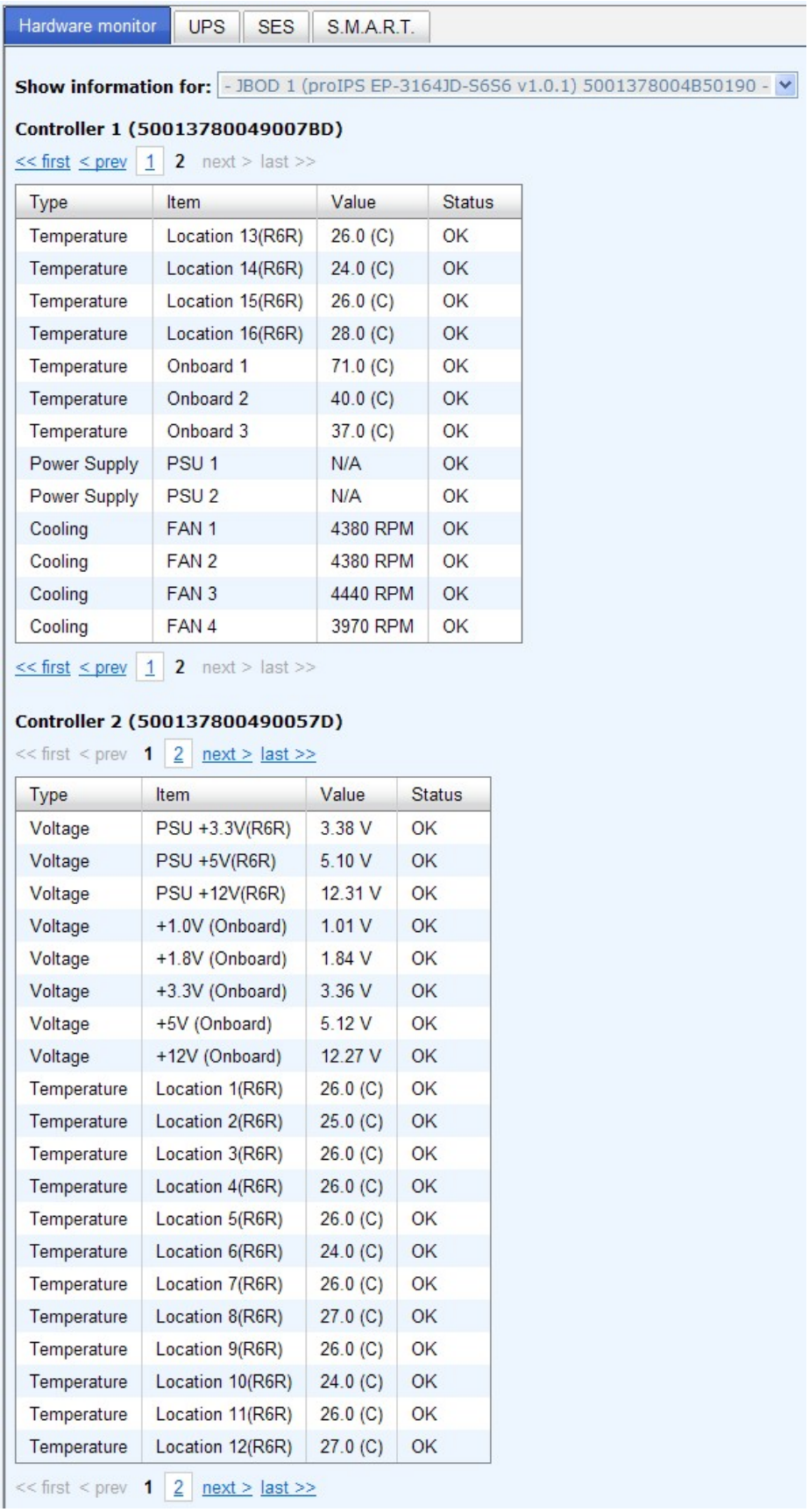
iSCSI RAID controller suports SAS JBOD expansion to connect extra SAS dual JBOD controller. When connecting a dual JBOD controller which can be detected in RAID Subsystem management GUI, it will be displayed in **"Show PD for:"** under **"/ Volume configuration / Physical disk" menu**. For example, Local, JBOD 1, JBOD 2, ...etc. Local means disks located in local RAID subsystem, JBOD 1 means disks located in first JBOD subsystem, and so on. The hard drives in JBOD can be used as local disks.



	Slot							Serial	Type	Write cache	Standby	Readahead	Command queuing
OP	1	558	r50-1	Online	Good	RAID disk	WDC	WD-WXM1E60RW203	SATA2	Enabled	Disabled	Enabled	Disabled
OP	3	465	r6-3	Online	Good	RAID disk	WDC	WD-WCASY3223587	SATA2	Enabled	Disabled	Enabled	Disabled
OP	4	465	r6-3	Online	Good	RAID disk	WDC	WD-WMAYP0015736	SATA2	Enabled	Disabled	Enabled	Disabled
OP	5	558	r50-1	Online	Good	RAID disk	WDC	WD-WXM1E6070999	SATA2	Enabled	Disabled	Enabled	Disabled
OP	7	232		Online	Good	Free disk	Seagate	9QE6T6DW	SATA2	Enabled	Disabled	Enabled	Disabled
OP	8	465	r6-3	Online	Good	RAID disk	WDC	WD-WMAYP0015949	SATA2	Enabled	Disabled	Enabled	Disabled
OP	9	558	r50-1	Online	Good	RAID disk	WDC	WD-WXM1E6070513	SATA2	Enabled	Disabled	Enabled	Disabled
OP	12	465	r6-3	Online	Good	RAID disk	WDC	WD-WMAYP0014684	SATA2	Enabled	Disabled	Enabled	Disabled
OP	13	558	r50-1	Online	Good	RAID disk	WDC	WD-WXM1E6071038	SATA2	Enabled	Disabled	Enabled	Disabled
OP	15	232		Online	Good	Free disk	Seagate	5QE5FK6D	SATA2	Enabled	Disabled	Enabled	Disabled
OP	16	465	r6-3	Online	Good	RAID disk	WDC	WD-WMAYP0015624	SATA2	Enabled	Disabled	Enabled	Disabled

"/ Enclosure management / Hardware monitor" can display the hardware status of SAS JBODs.


Hardware monitor
UPS
SES
S.M.A.R.T.
Show information for: - JBOD 1 (proIPS EP-3164JD-S6S6 v1.0.1) 5001378004B50190 -
Controller 1 (500137800490078D)
<< first < prev 1 2 next > last >>
Type Item Value Status
Voltage PSU +3.3V(R6R) 3.36 V OK
Voltage PSU +5V(R6R) 5.10 V OK
Voltage PSU +12V(R6R) 12.31 V OK
Voltage +1.0V (Onboard) 0.99 V OK
Voltage +1.8V (Onboard) 1.84 V OK
Voltage +3.3V (Onboard) 3.34 V OK
Voltage +5V (Onboard) 5.10 V OK
Voltage +12V (Onboard) 12.27 V OK
Temperature Location 1(R6R) 26.0 (C) OK
Temperature Location 2(R6R) 25.0 (C) OK
Temperature Location 3(R6R) 26.0 (C) OK
Temperature Location 4(R6R) 26.0 (C) OK
Temperature Location 5(R6R) 26.0 (C) OK
Temperature Location 6(R6R) 24.0 (C) OK
Temperature Location 7(R6R) 26.0 (C) OK
Temperature Location 8(R6R) 27.0 (C) OK
Temperature Location 9(R6R) 26.0 (C) OK
Temperature Location 10(R6R) 24.0 (C) OK
Temperature Location 11(R6R) 26.0 (C) OK
Temperature Location 12(R6R) 28.0 (C) OK
<< first < prev 1 2 next > last >>
Controller 2 (500137800490057D)
<< first < prev 1 2 next > last >>
Type Item Value Status
Voltage PSU +3.3V(R6R) 3.36 V OK
Voltage PSU +5V(R6R) 5.10 V OK
Voltage PSU +12V(R6R) 12.31 V OK
Voltage +1.0V (Onboard) 1.01 V OK
Voltage +1.8V (Onboard) 1.84 V OK
Voltage +3.3V (Onboard) 3.36 V OK
Voltage +5V (Onboard) 5.12 V OK
Voltage +12V (Onboard) 12.27 V OK
Temperature Location 1(R6R) 26.0 (C) OK
Temperature Location 2(R6R) 25.0 (C) OK
Temperature Location 3(R6R) 26.0 (C) OK
Temperature Location 4(R6R) 26.0 (C) OK
Temperature Location 5(R6R) 26.0 (C) OK
Temperature Location 6(R6R) 24.0 (C) OK
Temperature Location 7(R6R) 26.0 (C) OK
Temperature Location 8(R6R) 27.0 (C) OK
Temperature Location 9(R6R) 26.0 (C) OK
Temperature Location 10(R6R) 24.0 (C) OK
Temperature Location 11(R6R) 26.0 (C) OK
Temperature Location 12(R6R) 28.0 (C) OK
<< first < prev 1 2 next > last >>



Hardware monitor | UPS | SES | S.M.A.R.T.

Show information for: - JBOD 1 (proIPS EP-3164JD-S6S6 v1.0.1) 5001378004B50190 -

Controller 1 (50013780049007BD)

<< first < prev 1 2 next > last >>

Type	Item	Value	Status
Temperature	Location 13(R6R)	26.0 (C)	OK
Temperature	Location 14(R6R)	24.0 (C)	OK
Temperature	Location 15(R6R)	26.0 (C)	OK
Temperature	Location 16(R6R)	28.0 (C)	OK
Temperature	Onboard 1	71.0 (C)	OK
Temperature	Onboard 2	40.0 (C)	OK
Temperature	Onboard 3	37.0 (C)	OK
Power Supply	PSU 1	N/A	OK
Power Supply	PSU 2	N/A	OK
Cooling	FAN 1	4380 RPM	OK
Cooling	FAN 2	4380 RPM	OK
Cooling	FAN 3	4440 RPM	OK
Cooling	FAN 4	3970 RPM	OK

<< first < prev 1 2 next > last >>

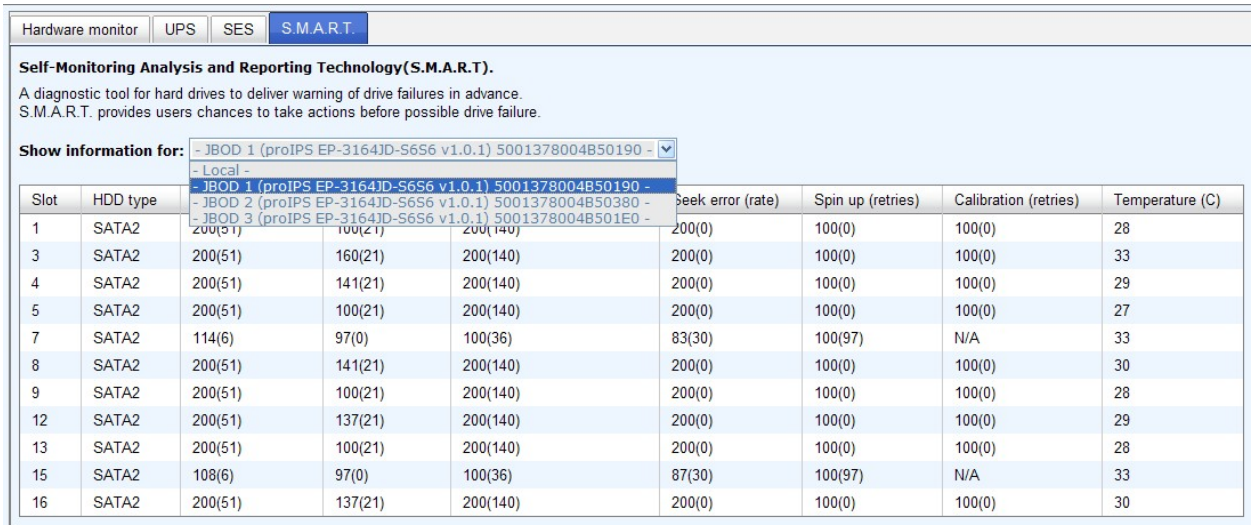
Controller 2 (500137800490057D)

<< first < prev 1 2 next > last >>

Type	Item	Value	Status
Voltage	PSU +3.3V(R6R)	3.38 V	OK
Voltage	PSU +5V(R6R)	5.10 V	OK
Voltage	PSU +12V(R6R)	12.31 V	OK
Voltage	+1.0V (Onboard)	1.01 V	OK
Voltage	+1.8V (Onboard)	1.84 V	OK
Voltage	+3.3V (Onboard)	3.36 V	OK
Voltage	+5V (Onboard)	5.12 V	OK
Voltage	+12V (Onboard)	12.27 V	OK
Temperature	Location 1(R6R)	26.0 (C)	OK
Temperature	Location 2(R6R)	25.0 (C)	OK
Temperature	Location 3(R6R)	26.0 (C)	OK
Temperature	Location 4(R6R)	26.0 (C)	OK
Temperature	Location 5(R6R)	26.0 (C)	OK
Temperature	Location 6(R6R)	24.0 (C)	OK
Temperature	Location 7(R6R)	26.0 (C)	OK
Temperature	Location 8(R6R)	27.0 (C)	OK
Temperature	Location 9(R6R)	26.0 (C)	OK
Temperature	Location 10(R6R)	24.0 (C)	OK
Temperature	Location 11(R6R)	26.0 (C)	OK
Temperature	Location 12(R6R)	27.0 (C)	OK

<< first < prev 1 2 next > last >>

"/ Enclosure management / S.M.A.R.T." can display S.M.A.R.T. information of all PDs, including Local and all SAS JBODs.



SAS JBOD expansion has some constraints as described in the followings:

1. User can create RAID group among multiple chassis/enclosures; the maximum number of disks in a single RAID group is 32.
2. Global spare disk can support all RAID groups which can be located in the different chassis/enclosure.
3. When support SATA drives for the redundant JBOD model, the SAS-SATA Bridge board is required. The SATA Dongle board does not apply to this model.
4. The following table is the maximum JBOD numbers and maximum HDD numbers with different chassis/enclosures can be cascaded.

RAID Storage System	Dual controller + Dual JBOD			Single controller + Single JBOD		
	24 bays	16 bays	12 bays	24 bays	16 bays	12 bays
JBOD 24 bays no.	2	2	2	4	4	4
Max HDD no.	72	64	60	120	112	108
JBOD 16 bays no.	3	3	3	6	6	6
Max HDD no.	72	64	60	120	112	108
JBOD 12 bays no.	4	4	4	8	8	8
Max HDD no.	72	64	60	120	112	108

4.3 Upgrading Firmware

To upgrade the firmware of JBOD subsystem, please follow the steps.

1. Please prepare/download the new JBOD firmware file and save in local hard drive.
2. There is a hidden web page for JBOD firmware upgrade. Please login first to management Web UI as admin, and then add this URL to the browser. (http://<Management-IP>/jbod_upg.php), for example:

   http://192.168.10.50/jbod_upg.php

FOLLOW THE STEPS TO UPGRADE THE FIRMWARE OF JBOD
Step 1: Choose a JBOD :
Step 2: Browse the firmware to upgrade :
Browse...
Step 3: Make sure Step 1 & 2 is correct, then Confirm!
Confirm

3. Choose the JBOD which you want to upgrade.
4. Click **"Browse"** to select the JBOD firmware file previously saved in local hard drive. Click **"Confirm"**.
5. After finished upgrading, the system must be rebooted manually to make the new firmware take effect.

Chapter 5 Maintenance

5.2 Replacing JBOD Subsystem Components

5.2.1 Replacing JBOD Controller Module

When replacing a failed JBOD Controller Module, please follow these steps:

1. Loosen the thumbscrews on the sides of the JBOD Controller Module drawer.
2. Pull out the defective JBOD Controller Module drawer.
3. Insert and slide the new JBOD Controller Module in. Note that it may be necessary to remove the old/defective JBOD Controller Module from the drawer case and install the new one.

IMPORTANT: When replacing a failed component online, it is not recommended to remove the failed component for a long period of time; proper air flow within the enclosure might fail causing high controller/disk drive temperature.

4. Tighten the thumbscrews on the sides of the JBOD Controller Module case.

5.2.1.1 Replacing Controller Module with Plate Cover

When replacing a failed JBOD Controller Module with Plate Cover, please follow these steps:

1. Loosen thumbscrews of the failed JBOD Controller Module drawer.
2. Remove the failed JBOD Controller Module drawer from the subsystem.
3. Insert the JBOD Controller Plate Cover.

JBOD Controller Module Plate Cover

4. Tighten the thumbscrews of the JBOD Controller Plate Cover.

When replacing a failed component online, it is not recommended to remove the failed component for a long period of time; proper air flow within the enclosure might fail causing high controller/disk drive temperature.

5.2.2 Replacing Power Supply Fan Module

When replacing a failed power supply fan module (PSFM), please follow these steps:

1. Turn off the Power On/Off Switch of the failed PSFM.
2. Disconnect the power cord from the AC Inlet Plug of PSFM.
3. Loosen thumbscrews of the PSFM.
4. Use the handle to pull out the defective PSFM.
5. Before inserting the new PSFM, make sure the Power On/Off Switch is on "Off" state.
6. Insert and slide the new PSFM in until it clicks into place.

IMPORTANT: When the subsystem is online and a Power Supply fails, and the replacement Power Supply module is not yet available, the failed Power Supply Module can be replaced with the Plate Cover. This is to maintain proper airflow within the enclosure. (Refer to next section)

When replacing a failed component online, it is not recommended to remove the failed component for a long period of time; proper air flow within the enclosure might fail causing high controller/disk drive temperature.

7. Connect the power cord to the AC Inlet Plug of PSFM.
8. Tighten the thumbscrews of the PSFM.
9. Turn on the Power On/Off Switch of the PSFM.

NOTE: After replacing the Power Supply Fan Module and turning on the Power On/Off Switch of the PSFM, the Power Supply will not power on immediately. The Fans in the PSFM will spin-up until the RPM becomes stable. When Fan RPM is already stable, the Power Supply will then be powered on. This process takes more or less 30 seconds. This safety measure helps prevent possible Power Supply overheating when the Fans cannot work.

5.2.2.1 Replacing Power Supply Fan Module with Plate Cover

When replacing a failed power supply fan module (PSFM) with Plate Cover, please follow these steps:

1. Turn off the Power On/Off Switch of the failed PSFM.
2. Disconnect the power cord from the AC Inlet Plug of PSFM.
3. Loosen thumbscrews of the failed PSFM.
4. Pull out the defective PSFM.
5. Insert the PSFM Plate Cover carefully.

Power Supply Fan Module Plate Cover